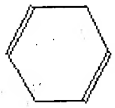
NIST Standard Reference Data Program | Online Databases | Chemistry WebBook

1,4-Cyclohexadiene

- **Formula:** C_6H_8
- **Molecular Weight:** 80.13
- **CAS Registry Number:** 628-41-1
- **Chemical Structure:**



This structure is also available as a 2d Mol file or as a computed 3d Mol file.

- **Other Names:** 1,4-Dihydrobenzene; Cyclohexa-1,4-diene
- Notes / Error Report
- **Other Data Available:**
  - Gas phase thermochemistry data
  - Condensed phase thermochemistry data
  - Phase change data
  - Reaction thermochemistry data
  - Gas phase ion energetics data
  - Gas Phase IR Spectrum
  - Mass Spectrum
- Switch to calorie-based units

Notes / Error Report

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2/03
STN/CAPLUS

```
=> s cyclohexadiene (P) electrolyte
         12056 CYCLOHEXADIENE
        208259 ELECTROLYTE
L1          32 CYCLOHEXADIENE (P) ELECTROLYTE

=> d l1 1-32 kwic ibib

L1   ANSWER 1 OF 32  CAPLUS  COPYRIGHT 2003 ACS
IT   96-49-1, Ethylene carbonate   105-58-8, Diethyl carbonate   592-57-4, 1,3-
     Cyclohexadiene
     RL: TEM (Technical or engineered material use); USES (Uses)
        (nonaq. electrolyte contg.; lithium secondary battery with
        nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and
        fluorine-contg. solute for improved charge -discharge cycle
        characteristic)
ACCESSION NUMBER:        2002:735451  CAPLUS
DOCUMENT NUMBER:         137:265656
TITLE:                   Lithium secondary battery with nonaqueous electrolyte
                         containing cyclic unsaturated hydrocarbon and
                         fluorine-containing solute for improved charge
                         -discharge cycle characteristic
INVENTOR(S):             Kita, Yoshinori; Kinoshita, Akira; Yanagida,
                         Katsunori; Noma, Toshiyuki; Yonezu, Ikuo
PATENT ASSIGNEE(S):      Sanyo Electric Co., Ltd., Japan
SOURCE:                  Jpn. Kokai Tokkyo Koho, 9 pp.
                         CODEN: JKXXAF
DOCUMENT TYPE:           Patent
LANGUAGE:                Japanese
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND  DATE           APPLICATION NO.  DATE
     ----------------    ----  --------       ---------------  --------
     JP 2002280062       A2    20020927       JP 2001-73521    20010315
PRIORITY APPLN. INFO.:                    JP 2001-73521       20010315

L1   ANSWER 2 OF 32  CAPLUS  COPYRIGHT 2003 ACS
IT   628-41-1, 1,4-Cyclohexadiene
     RL: MOA (Modifier or additive use); USES (Uses)
        (solid-electrolyte battery contg. diene compd.)
ACCESSION NUMBER:        2001:676382  CAPLUS
DOCUMENT NUMBER:         135:213509
TITLE:                   Solid electrolyte battery
INVENTOR(S):             Hara, Tomitaro; Shibuya, Mashio; Suzuki, Yusuke
PATENT ASSIGNEE(S):      Sony Corp., Japan
SOURCE:                  Eur. Pat. Appl., 13 pp.
                         CODEN: EPXXDW
DOCUMENT TYPE:           Patent
LANGUAGE:                English
FAMILY ACC. NUM. COUNT:  1
PATENT INFORMATION:

     PATENT NO.          KIND  DATE           APPLICATION NO.  DATE
     ----------------    ----  --------       ---------------  --------
     EP 1132987          A2    20010912       EP 2001-105134   20010302
          R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
             IE, SI, LT, LV, FI, RO
     JP 2001256999       A2    20010921       JP 2000-72512    20000310
     NO 2001001210       A     20010911       NO 2001-1210     20010309
     CN 1319906          A     20011031       CN 2001-111305   20010309
     US 2002015885       A1    20020207       US 2001-803561   20010309
PRIORITY APPLN. INFO.:                    JP 2000-72512    A   20000310
```

L1 ANSWER 3 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB U(VI) complexed with aluminon (3-[bis(3-carboxy-4-hydroxy-phenyl)methylene]-6-oxo-1,4-**cyclohexadiene**-1-carboxylic acid triammonium salt) was detd. by adsorptive cathodic stripping voltammetry (ACSV) using a hanging Hg drop electrode. Trace U(VI) and. . . urea. Optimal conditions are: accumulation time; 180-200 s, accumulation potential; 50 mV vs. Ag/AgCl, scan rate; 40 mV s-1, supporting **electrolyte**; 0.1M NaOAc buffer at pH 6.5-7.0, and concn. of aluminon; 1 .times. 10-6 M The linear range of U(VI) and. . .
ACCESSION NUMBER: 2000:645058 CAPLUS
DOCUMENT NUMBER: 133:316924
TITLE: Simultaneous determination of trace uranium(VI) and zinc(II) by adsorptive cathodic stripping voltammetry with aluminon ligand
AUTHOR(S): Cha, K.-W.; Park, C.-I.; Park, S.-H.
CORPORATE SOURCE: Department of Chemistry, Inha University, Inchon, 402-751, S. Korea
SOURCE: Talanta (2000), 52(6), 983-989
CODEN: TLNTA2; ISSN: 0039-9140
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 4 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB . . . semiconducting diamond thin-film electrodes is studied by measuring cyclic voltammograms (CVs) for the anodic oxidn. of 1,4-difluorobenzene in the liq. **electrolyte**, neat Et4NF.4HF, and the electrochem. fluorination of 1,4-difluorobenzene is carried out. While the CVs for Pt electrodes show waves assocd.. . . range. The electrochem. fluorination of 1,4-difluorobenzene is carried out using Pt and diamond electrodes, and the product is identified as 3,3,6,6-tetrafluoro-1,4-**cyclohexadiene**. The results indicate the wide potential window and the high chem./electrochem. stability of diamond electrodes, suggesting that the electrochem. fluorination. . .
ACCESSION NUMBER: 2000:159372 CAPLUS
DOCUMENT NUMBER: 132:270875
TITLE: Electrochemical fluorination of 1,4-difluorobenzene using semiconducting diamond thin-film electrodes
AUTHOR(S): Okino, Fujio; Shibata, Hirotake; Kawasaki, Shinji; Touhara, Hidekazu; Momota, Kunitake; Nishitani-Gamo, Mikka; Sakaguchi, Isao; Ando, Toshihiro
CORPORATE SOURCE: Department of Chemistry, Faculty of Textile Science and Technology, Shinshu University, Ueda, 386-8567, Japan
SOURCE: New Diamond and Frontier Carbon Technology (1999), 9(5), 357-363
CODEN: NDFTFF; ISSN: 1344-9931
PUBLISHER: Scientific Publishing Division of MYU K.K.
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L1 ANSWER 5 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses 25233-30-1, Polyaniline
RL: DEV (Device component use); USES (Uses)
(cathodes in batteries using polymer electrolytes laminated with gelled electrolytes or **electrolyte** solns.)
ACCESSION NUMBER: 2000:88490 CAPLUS
DOCUMENT NUMBER: 132:110649
TITLE: Laminated electrolytes and batteries using the

[redacted]

electrolytes
INVENTOR(S): Harada, Manabu; Nishiyama, Toshihiko; Fujiwara, Masaki; Okada, Shinako
PATENT ASSIGNEE(S): NEC Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000040527	A2	20000208	JP 1998-208067	19980723
JP 3257516	B2	20020218		
US 6413678	B1	20020702	US 1999-353384	19990715

PRIORITY APPLN. INFO.: JP 1998-208067 A 19980723

L1 ANSWER 6 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 86-73-7, Fluorene 95-14-7, 1H-Benzotriazole 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses 122-60-1, 1,2-Epoxy-3-phenoxypropane 130-15-4, 1,4-Naphthalenedione 1707-75-1, 1,1-Diphenyl-2-picrylhydrazine
RL: MOA (Modifier or additive use); USES (Uses)
(nonaq. **electrolyte** solns. contg, optical stabilizing agents for secondary lithium batteries)
ACCESSION NUMBER: 1999:113260 CAPLUS
DOCUMENT NUMBER: 130:141661
TITLE: Secondary nonaqueous electrolyte batteries
INVENTOR(S): Sakai, Kenichi; Yamamoto, Kenji; Ueda, Naoki; Urushibara, Masaru
PATENT ASSIGNEE(S): Nippon Denso Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11040194	A2	19990212	JP 1997-192239	19970717

PRIORITY APPLN. INFO.: JP 1997-192239 19970717

L1 ANSWER 7 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB . . . semiconducting diamond thin-film electrodes has been studied by measuring cyclic voltammograms for the anodic oxidn. of 1, 4-difluorobenzene in the **electrolyte**, neat Et4NF.cntdot.4HF. A comparative study using a Pt-electrode establishes that the electrochem. fluorination of 1, 4-difluorobenzene using the diamond electrode yields 3, 3, 6, 6-tetrafluoro-1, 4-**cyclohexadiene**. Furthermore no peaks corresponding to the redox reaction of Pt-electrode, i.e., the formation and redn. of PtO2, are obsd. in. . .
ACCESSION NUMBER: 1999:73626 CAPLUS
DOCUMENT NUMBER: 130:214984
TITLE: Anodic behavior of semiconducting diamond thin-film electrodes in electrolyte for electrochemical fluorination
AUTHOR(S): Okino, Fujio; Shibata, Hirotake; Kawasaki, Shinji; Touhara, Hidekazu; Momota, Kunitake; Nishitani-Gamo, Mikka; Sakaguchi, Isao; Ando, Toshihiro
CORPORATE SOURCE: Faculty of Textile Science and Technology, Shinshu University, Tokida, Ueda, 386-8567, Japan
SOURCE: Tanso (1998), 185, 306-309

[redacted]

CODEN: TASOA3; ISSN: 0371-5345
PUBLISHER: Tanso Zairyo Gakkai
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

L1 ANSWER 8 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, properties 123-31-9, Hydroquinone, properties
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(interfacial behavior of quantum well electrode|**electrolyte**: **electrolyte** electroreflectance spectra of single quantum well GaAs| AlxGa1-xAs electrode in hydroquinone+benzoquinone nonaq. **electrolyte**)
ACCESSION NUMBER: 1997:663795 CAPLUS
DOCUMENT NUMBER: 127:352322
TITLE: Interfacial behavior of a quantum well electrode|electrolyte: EER spectra of an SQW GaAs|AlxGa1-xAs electrode in HQ+BQ non-aqueous electrolyte
AUTHOR(S): Liu, Yao; Xiao, Xu-Rui; Wang, Ruo-Zhen; Li, Dong-Lin; Zeng, Yi-Ping; Yang, Chun-Hui; Sun, Dian-Zhao
CORPORATE SOURCE: Institute of Photographic Chemistry Academia Sinica, Beijing, Peop. Rep. China
SOURCE: Journal of Electroanalytical Chemistry (1997), 430(1-2), 91-95
CODEN: JECHES; ISSN: 0368-1874
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 9 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 99-99-0, p-Methylnitrobenzene 102-54-5, Ferrocene 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses 123-31-9, Hydroquinone, uses
RL: NUU (Other use, unclassified); PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process); USES (Uses)
(**electrolyte** electroreflectance spectra of single quantum well GaAs|AlxGa1-xAs electrode studied as function of applied reverse bias nonaq. solns. of)
ACCESSION NUMBER: 1997:435077 CAPLUS
DOCUMENT NUMBER: 127:323795
TITLE: Interfacial behavior of quantum well electrode|electrolyte: effect of redox species on EER spectra of a single quantum well GaAs|AlxGa1-xAs electrode
AUTHOR(S): Liu, Yao; Xiao, Xu-Rui; Wang, Ruo-Zhen; Li, Dong-Lin; Zeng, Yi-Ping; Yang, Chun-Hui; Sun, Dian-Zhao
CORPORATE SOURCE: Institute of Photographic Chemistry, Academia Sinica, Beijing, Peop. Rep. China
SOURCE: Journal of Electroanalytical Chemistry (1997), 429(1-2), 55-60
CODEN: JECHES; ISSN: 0368-1874
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 10 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 111-78-4, 1,5-Cyclooctadiene 592-57-4, 1,3-**Cyclohexadiene** 628-41-1, 1,4-**Cyclohexadiene** 19111-23-0, 1,5,9-Cyclodecatriene
RL: DEV (Device component use); USES (Uses)
(lithium battery **electrolyte** contg.)
ACCESSION NUMBER: 1997:250163 CAPLUS
DOCUMENT NUMBER: 126:227670
TITLE: Electrolyte solvent for secondary nonaqueous-electrolyte lithium batteries

INVENTOR(S): Arai, Juichi; Ito, Yutaka; Imazeki, Shuji
PATENT ASSIGNEE(S): Hitachi Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09035746	A2	19970207	JP 1995-182418	19950719

PRIORITY APPLN. INFO.: JP 1995-182418 19950719

L1 ANSWER 11 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 102-54-5, Ferrocene 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, properties 123-31-9, Hydroquinone, properties 12125-80-3, Ferricinium
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(**electrolyte** electroreflectance of single quantum well aluminum gallium arsenide/gallium arsenide electrode interface with nonaq. soln. contg.)
ACCESSION NUMBER: 1996:378926 CAPLUS
DOCUMENT NUMBER: 125:126377
TITLE: EER studies of the single quantum well GaAs/AlxGa1-xAs electrode/nonaqueous solution interface
AUTHOR(S): Liu, Yao; Xiao, Xu-Rui; Wang, Ruo-Zhen; Li, Dong-Lin; Zeng, Yi-Ping; Yang, Chun-Hui; Sun, Dian-Zhao
CORPORATE SOURCE: Institute of Photographic Chemistry, Academia Sinica, Beijing, 100101, Peop. Rep. China
SOURCE: Chemical Physics Letters (1996), 256(3), 312-316
CODEN: CHPLBC; ISSN: 0009-2614
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 12 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB . . . of chlorobenzene (1), 1-chloro-4-fluorobenzene (2), bromobenzene (3) and 1-bromo-4-fluorobenzene (4) in Et4NF.mHF. The mechanism consists of a cathodic dehalodefluorination of 3-chloro-3,6,6-trifluoro-1,4-**cyclohexadiene** (2a) (or 3-bromo-3,6,6-trifluoro-1,4-**cyclohexadiene** (4a)) which was produced by anodic fluorination of 1 and 2 (or 3 and 4). The reaction should compete with. . . ratio of the dehalodefluorination and the hydrogen evolution varied with the cathode potential, the content of HF (m) in the **electrolyte** Et4NF.mHF and the concn. of 2a or 4a in the **electrolyte** soln. The chloride and bromide anions produced through the cathodic dehalodefluorination are anodically oxidized to chlorine and bromine radicals, resp.. . .
ACCESSION NUMBER: 1996:355080 CAPLUS
DOCUMENT NUMBER: 125:125954
TITLE: Electrochemical fluorination of aromatic compounds in liquid R4NF.mHF. Part V - a study on side-reactions during the fluorination of halobenzenes
AUTHOR(S): Horio, Hirohide; Momota, Kunitaka; Kato, Katsuya; Morita, Masayuki; Matsuda, Yoshiharu
CORPORATE SOURCE: Dep. Res. Dev., Morita Chem. Ind. Co. Ltd., Osaka, 532, Japan
SOURCE: Electrochimica Acta (1996), 41(10), 1611-1618
CODEN: ELCAAV; ISSN: 0013-4686
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 13 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, reactions 123-31-9, Hydroquinone, reactions 7553-56-2, Iodine, reactions 13408-62-3, Ferricyanide 3- 13408-63-4 20461-54-5, Iodide ion, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(**electrolyte** in photoelectrochem. cell; photoelec. property of heterojunction of C70 on GaAs electrode)

ACCESSION NUMBER: 1996:243942 CAPLUS
DOCUMENT NUMBER: 124:329751
TITLE: Photoelectric property of C70 on GaAs electrode
AUTHOR(S): Zhan, Mengxiong; Wu, Zhenyi; Yang, Shiyao; Chen, Zaihong; Yu, Rongqing; Zheng, Lansun
CORPORATE SOURCE: Dep. of Chem., Xiamen Univ., Xiamen, 361005, Peop. Rep. China
SOURCE: Gongneng Cailiao (1995), 26(6), 491-3
CODEN: GOCAEA; ISSN: 1001-9731
PUBLISHER: Gongneng Cailiao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

L1 ANSWER 14 OF 32 CAPLUS COPYRIGHT 2003 ACS
ST fluorocyclehexadiene synthesis; **cyclohexadiene** tetrafluoro synthesis; fluorobenzene electrochem fluorination ammonium **electrolyte**; ammonium fluoride **electrolyte** difluorobenzene fluorination

ACCESSION NUMBER: 1995:705833 CAPLUS
DOCUMENT NUMBER: 123:143314
TITLE: Synthesis of 3,3,6,6-tetrafluorocyclohexa-1,4-dienes by electrochemical partial fluorination
AUTHOR(S): Hayakawa, Yoshio; Kato, Katsuya; Yonezawa, Tetsuo; Momota, Kunitaka
CORPORATE SOURCE: Natl. Ind. Res. Inst. Nagoya, Nagoya, 462, Japan
SOURCE: Nagoya Kogyo Gijutsu Kenkyusho Hokoku (1995), 44(1), 36-43
CODEN: NGIKEN; ISSN: 1340-3729
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

L1 ANSWER 15 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB Electrochem. fluorination of bromobenzene (I) was carried out on a platinum anode in a neat liq. **electrolyte** of Et4NF.mHF (Et = C2H5, m = 4:0, 4.45 or 5.7). As the primary products, 1-bromo-3,6,6-trifluoro-1,4-**cyclohexadiene** (IIa) and 3-bromo-3,6,6-trifluoro-1,4-**cyclohexadiene** (IIIa) were obtained. Since the fluorination of 1-bromo-2-fluorobenzene (II) also yielded IIa, the fluorination of I to IIa was found. . . the formation of II. The primary product IIa was subjected to dehydrofluorination yielding 1-bromo-2,5-difluorobenzene (IV), which was further electrofluorinated to 1-bromo-3,3,6,6-tetrafluoro-1,4-**cyclohexadiene** (IVa). The electrolysis of 1-bromo-4-fluorobenzene (III) yielded IIIa, accompanied by the formation of 1,4-difluorobenzene (V), and 3,3,6,6-tetrafluoro-1,4-**cyclohexadiene** (V) in the soln. with lower HF concn.

ACCESSION NUMBER: 1995:258063 CAPLUS
DOCUMENT NUMBER: 122:117289
TITLE: Electrochemical fluorination of bromobenzene in liquid Et4NF-mHF
AUTHOR(S): Morita, Masayuki; Momota, Kunitaka; Horio, Hirohide; Kato, Katsuya; Matsuda, Yoshiharu
CORPORATE SOURCE: Fac. Eng., Yamaguchi Univ., Ube, 755, Japan
SOURCE: Denki Kagaku oyobi Kogyo Butsuri Kagaku (1994), 62(12), 1196-201
CODEN: DKOKAZ; ISSN: 0366-9297
DOCUMENT TYPE: Journal
LANGUAGE: English

[redacted]

L1 ANSWER 16 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB . . . products in high yield, and neither deposition of a polymeric film on the anode surface nor a coloration of the **electrolyte** soln. was obsd. Some 1,2,4-trifluorobenzene (4) or 1,2,3,5-tetrafluorobenzene (6) was produced in the course of the fluorination of 1,3-difluorobenzene (2) or 1,3,5-trifluorobenzene (5), resp. These were produced chem. by the dehydrofluorination of 1,3,3,6-tetrafluoro-1,4-**cyclohexadiene** (2a) or 1,3,3,5,6-pentafluoro-1,4-**cyclohexadiene** (5a), which was produced by the anodic fluorination, and large portions of the resulting 4 and 6 were further fluorinated. . .

ACCESSION NUMBER: 1994:191199 CAPLUS
DOCUMENT NUMBER: 120:191199
TITLE: Electrochemical fluorination of aromatic compounds in liquid R4NF.mHF. Part II. Fluorination of di- and trifluorobenzenes
AUTHOR(S): Momota, Kunitaka; Kato, Katsuya; Morita, Masayuki; Matsuda, Yoshiharu
CORPORATE SOURCE: Dep. Res. Dev., Morita Chem. Ind. Co. Ltd., Osaka, 532, Japan
SOURCE: Electrochimica Acta (1994), 39(1), 41-9
CODEN: ELCAAV; ISSN: 0013-4686
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 120:191199

L1 ANSWER 17 OF 32 CAPLUS COPYRIGHT 2003 ACS
ST fluorination electrochem arom compd; tetraalkylammonium fluoride hydrogen fluoride **electrolyte**; benzene fluorobenzene difluorobenzene electrofluorination; **cyclohexadiene** deriv electrofluorination product
IT 22060-77-1P, 3,3,6,6-Tetrafluoro-1,4-**cyclohexadiene** 74298-20-7P
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in electrochem. fluorination of benzene and fluorobenzene in tetraalkylammonium fluoride-hydrogen fluoride **electrolyte** on platinum)

ACCESSION NUMBER: 1993:482102 CAPLUS
DOCUMENT NUMBER: 119:82102
TITLE: Electrochemical fluorination of aromatic compounds in liquid R4NF.mHF. Part I. Basic properties of R4NF.mHF and the fluorination of benzene, fluorobenzene and 1,4-difluorobenzene
AUTHOR(S): Momota, Kunitaka; Morita, Masayuki; Matsuda, Yoshiharu
CORPORATE SOURCE: Fac. Eng., Yamaguchi Univ., Ube, 755, Japan
SOURCE: Electrochimica Acta (1993), 38(8), 1123-30
CODEN: ELCAAV; ISSN: 0013-4686
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 18 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 108-88-3P, Toluene, preparation 462-06-6P, Fluorobenzene 540-36-3P, 1,4-Difluorobenzene 74298-20-7P, 3,3,6-Trifluoro-1,4-**cyclohexadiene**
RL: FORM (Formation, nonpreparative); PREP (Preparation)
(formation of, in electrochem. fluorination of benzene in acetonitrile with alkylammonium fluoride-hydrofluoric acid **electrolyte** system)

ACCESSION NUMBER: 1993:416890 CAPLUS
DOCUMENT NUMBER: 119:16890
TITLE: Electrochemical fluorination of benzene in acetonitrile solutions
AUTHOR(S): Momota, Kunitaka; Morita, Masayuki; Matsuda, Yoshiharu

CORPORATE SOURCE: Fac. Eng., Yamaguchi Univ., Ube, 755, Japan
SOURCE: Electrochimica Acta (1993), 38(4), 619-24
CODEN: ELCAAV; ISSN: 0013-4686
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 19 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 22060-77-1P, 3,3,6,6-Tetrafluoro-1,4-**cyclohexadiene**
RL: PREP (Preparation)
(prepn. of, by electrochem. fluorination of difluorobenzene on platinum in quaternary ammonium fluoride hydrofluoride **electrolyte**)
ACCESSION NUMBER: 1993:89371 CAPLUS
DOCUMENT NUMBER: 118:89371
TITLE: New electrolyte, R4NF.nHF, for electrochemical fluorination of organic compounds
AUTHOR(S): Momota, Kunitaka; Morita, Masayuki; Matsuda, Yoshiharu
CORPORATE SOURCE: Div. Res. Dev., Morita Chem. Ind. Co., Ltd., Osaka, 532, Japan
SOURCE: Denki Kagaku oyobi Kogyo Butsuri Kagaku (1992), 60(11), 1016-17
CODEN: DKOKAZ; ISSN: 0366-9297
DOCUMENT TYPE: Journal
LANGUAGE: Japanese

L1 ANSWER 20 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB The adsorption of ubiquinone-10 [2-(3,7,11,15,19,23,27,31,35,39-decamethyl-2,6,10,14, 18,22,26,30,34,38-tetracontadecaenyl)-5,6-dimethoxy-3-methyl-2,5-**cyclohexadiene**-1,4-dione] has been investigated at the mercury/**electrolyte** soln. interface by a.c. voltammetry and cyclic voltammetry. A new method has been established for the estn. of adsorption isotherms. . . .
ACCESSION NUMBER: 1992:660372 CAPLUS
DOCUMENT NUMBER: 117:260372
TITLE: Determination of surfactant coverage of electrodes. A simple and efficient approach
AUTHOR(S): Wittstock, Gunther; Emons, Hendrik
CORPORATE SOURCE: Dep. Chem., Univ. Leipzig, Leipzig, O-7010, Germany
SOURCE: Electrochimica Acta (1992), 37(13), 2395-401
CODEN: ELCAAV; ISSN: 0013-4686
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 21 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB A polarog. method for the estn. of styrene, isoprene, and 1,3-**cyclohexadiene** using 0.02 M tetra-Bu ammonium iodide in DMF as supporting **electrolyte** is developed. The method is useful for the quality assurance of conjugated enes as well as for detg. trace quantities. . . .
ACCESSION NUMBER: 1991:103165 CAPLUS
DOCUMENT NUMBER: 114:103165
TITLE: Polarographic estimation of conjugated enes
AUTHOR(S): Husain, Sajid; Sastry, G. S. R.; Prasad, P. Ravi; Sarma, G. V. R.
CORPORATE SOURCE: Anal. Div., Indian Inst. Chem. Technol., Hyderabad, 500 007, India
SOURCE: Electroanalysis (1990), 2(5), 415-17
CODEN: ELANEU; ISSN: 1040-0397
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 22 OF 32 CAPLUS COPYRIGHT 2003 ACS
IT 7553-56-2, Iodine, uses and miscellaneous 106-51-4P, 2,5-**Cyclohexadiene**-1,4-dione, preparation
RL: PRP (Properties)

(**electrolyte** contg. redox system of, photoelectrochem. characteristics of n-layered dichalcogenide electrodes in molten acetamide with)

ACCESSION NUMBER: 1990:555816 CAPLUS
DOCUMENT NUMBER: 113:155816
TITLE: Electrochemical and photoelectrochemical studies in molten acetamide - n-type layered dichalcogenides
AUTHOR(S): Sampath, S.; Narayan, R.
CORPORATE SOURCE: Dep. Chem., Indian Inst. Technol., Madras, 600 036, India
SOURCE: Bulletin of Electrochemistry (1990), 6(5), 538-41
CODEN: BUELE6; ISSN: 0256-1654
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 23 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB Poly(thiophene-benzoquinone) films were prepd. on platinum spheres by electropolymn. of the monomer 1-[3-(3-thienyl)propyl] 2,4,5-trichloro-3,6-dioxo-1,4-**cyclohexadiene**-1-acetate (TBQ) in MeCN. These films were studied mainly by cyclic voltammetry and chronoamperometry in MeCN contg. tetraalkylammonium salts as the supporting **electrolyte**.

ACCESSION NUMBER: 1990:187774 CAPLUS
DOCUMENT NUMBER: 112:187774
TITLE: Electrochemical behavior of poly(thiophene-benzoquinone) films
AUTHOR(S): Grimshaw, James; Perera, Sarath D.
CORPORATE SOURCE: Dep. Chem., Queen's Univ., Belfast, BT9 5AG, UK
SOURCE: Journal of Electroanalytical Chemistry and Interfacial Electrochemistry (1990), 278(1-2), 287-94
CODEN: JEIEBC; ISSN: 0022-0728
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 24 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB . . . soln. of 4-methoxybenzanilide (I) or 4-methoxyacetanilide (II) in a single-cell app. at const. current using lithium perchlorate as the supporting **electrolyte** afforded high yields of N-benzoyl- and N-acetyl-1,4,4-trimethoxy-1-amino-2,5-**cyclohexadiene**, resp. This is the first time anodic 1,4-addn. products have been characterized from anodic oxidn. of anilides. When these anodic. . .

ACCESSION NUMBER: 1989:57246 CAPLUS
DOCUMENT NUMBER: 110:57246
TITLE: Anodic oxidation studies of p-methoxyanilides. A general method for preparation of acylated quinone ketals
AUTHOR(S): Swenton, John S.; Bonke, Brian R.; Chen, Chung Pin; Chou, Chun Tzer
CORPORATE SOURCE: Dep. Chem., Ohio State Univ., Columbus, OH, 43210, USA
SOURCE: Journal of Organic Chemistry (1989), 54(1), 51-8
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 110:57246

L1 ANSWER 25 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB The electroinitiated cation radical Diels-Alder reaction was attempted for 1,3-**cyclohexadiene** in methylene chloride with Bu4NBF4 as the supporting **electrolyte**. The expected endo/exo adducts (4:1) were formed in very low yields. The major product was characterized by 1H and 13C. . . in an effort to optimize reaction results. Polymn. was still a major competing reaction, but the use of Bu4NPF6 supporting **electrolyte** and of graphite electrodes instead of Pt, improved the Diels-Alder adduct yield. Cation radical polymn. of 1,3-**cyclohexadiene** with tris(p-bromophenyl)aminium

hexachloroantimonate gave a mixt. of products that contained the expected Diels-Alder polymer as well as the product of. . .

IT 3109-63-5, Tetrabutylammonium hexafluorophosphate 22505-56-2
RL: PRP (Properties)
(supporting **electrolyte**, for Diels-Alder reaction in **cyclohexadiene** electrooxidn.)

IT 429-42-5
RL: PRP (Properties)
(supporting **electrolyte**, for electrooxidn. of **cyclohexadiene**, Diels-Alder reaction in relation to)

ACCESSION NUMBER: 1988:13021 CAPLUS
DOCUMENT NUMBER: 108:13021
TITLE: Electrochemical oxidation of 1,3-cyclohexadiene
AUTHOR(S): Nigenda, S. E.; Schleich, D. M.; Narang, S. C.; Keumi, T.
CORPORATE SOURCE: Polytech. Univ., Brooklyn, NY, 11201, USA
SOURCE: Journal of the Electrochemical Society (1987), 134(10), 2465-70
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 26 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB . . . cond., and 11B and 19F NMR spectral measurements. I exists as a dimer in MeCN and behaves as an 1:2 **electrolyte**, indicating the coordination of two of the BF4- ions per Eu(III) ion. The cond. increased when chelating amines were added. . . tetra-p-anisylethylene in MeNO2 but not in MeCN. In addn., I initiated the oligomerization and the polymn. of styrene, .alpha.-methylstyrene, and 1,3-**cyclohexadiene** in MeNO2. The mol.- wts. of the polymers obtained increased markedly in lowering the reaction temp. At room temp., indan. . .

ACCESSION NUMBER: 1987:439977 CAPLUS
DOCUMENT NUMBER: 107:39977
TITLE: Chemistry of weakly solvated lanthanide-metal cations. Synthesis, characterization, and catalytic chemistry of [Eu(CH3CN)3(BF4)3]x
AUTHOR(S): Thomas, Richard R.; Chebolu, Venkatasuryanarayana; Sen, Ayusman
CORPORATE SOURCE: Dep. Chem., Pennsylvania State Univ., University Park, PA, 16802, USA
SOURCE: Journal of the American Chemical Society (1986), 108(14), 4096-103
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 107:39977

L1 ANSWER 27 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB . . . . materials. Two methods are described: variants A and B. In variant A, 2 mmol of II are suspended in an **electrolyte** of 100 mL MeCN + 6.1 g NaClO4 + a drop of HClO4. Electrolysis is conducted with a Pt anode. . . the synthesis is conducted somewhat as in A, however in an open glass beaker holding 2% methanolic H2SO4 as the **electrolyte**, with 2 Pt electrodes and c.d. 0.3 A/cm2, in the presence of 1,3-**cyclohexadiene** or dimethylbutadiene. For the work up, the soln. is concd. to half the original vol., filled with H2O, neutralized with. . .

ACCESSION NUMBER: 1981:540787 CAPLUS
DOCUMENT NUMBER: 95:140787
TITLE: Simple electrosynthesis of 1,2,4-triazoline-3,5-diones
AUTHOR(S): Wamhoff, Heinrich; Kunz, Gerhard
CORPORATE SOURCE: Inst. Org. Chem. Biochem., Univ. Bonn, Bonn, D-5300/1, Fed. Rep. Ger.
SOURCE: Angewandte Chemie (1981), 93(9), 832-3

CODEN: ANCEAD; ISSN: 0044-8249
DOCUMENT TYPE: Journal
LANGUAGE: German

L1 ANSWER 28 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB The anodic oxidn. of 2,4-hexadiene [592-46-1], 1,3-butadiene [106-99-0], and 1,3-**cyclohexadiene** [592-57-4] in MeCN/H2O/NaClO4 yields a mixt. of diols, 2-oxazolines, and 3-pyrrolines. Methyl sorbate [689-89-4] forms methyl-4,5-epoxy-(E)-2-hexenovate; 1,4-diphenyl-1,3-butadiene [886-65-7] is cleaved to benzaldehyde and cinnamaldehyde. The product distribution is influenced by the supporting **electrolyte** . In the presence of BF4-, nearly exclusively diols are obtained, while 2-oxazolines and 3-pyrrolines are formed in acetamide/MeCN. Radical cations. . .
ACCESSION NUMBER: 1979:411318 CAPLUS
DOCUMENT NUMBER: 91:11318
TITLE: Anodic oxidation of organic compounds. Part 22. Anodic hydroxylation and acetamidation of conjugated dienes
AUTHOR(S): Baltes, Herbert; Stork, Ludwig; Schaefer, Hans J.
CORPORATE SOURCE: Org.-Chem. Inst., Univ. Muenster, Muenster, D-4400, Fed. Rep. Ger.
SOURCE: Chemische Berichte (1979), 112(3), 807-17
CODEN: CHBEAM; ISSN: 0009-2940
DOCUMENT TYPE: Journal
LANGUAGE: German

L1 ANSWER 29 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB The anodic addn. of 1,3-dimethylurea [96-31-1] to 2,4-hexadiene (I); 2-methyl-2,4-hexadiene; 2,5-dimethyl-2,4-hexadiene; 1,3-**cyclohexadiene**; 1,4-diphenylbutadiene; and trans-stilbene yields 4,5-disubstituted 1,3-dimethylimidazolidin-2-ones. Analogously, 1,3-diphenylurea [102-07-8] adds to I to form 5-methyl-1,3-diphenyl-4-(1-propenyl)imidazolidin-2-one [70238-76-5]. Urea and 1,3-diacetylurea fail. . . nucleophilicity. N,N'-diacetylethylenediamine and 1,2-diacetylhydrazine do not undergo addn. with I owing to their very low soly. in MeCN. In an **electrolyte** consisting of ethylene glycol/MeCN, I and 1,3-butadiene [106-99-0] produce glycol ethers. The formation of all products can be explained in. . .
ACCESSION NUMBER: 1979:212218 CAPLUS
DOCUMENT NUMBER: 90:212218
TITLE: Anodic oxidation of organic compounds. 23. Anodic addition of ureas and ethylene glycol to conjugated dienes
AUTHOR(S): Baltes, Herbert; Stork, Ludwig; Schaefer, Hans J.
CORPORATE SOURCE: Org.-Chem. Inst., Univ. Muenster, Muenster, Fed. Rep. Ger.
SOURCE: Liebigs Annalen der Chemie (1979), (3), 318-27
CODEN: LACHDL; ISSN: 0170-2041
DOCUMENT TYPE: Journal
LANGUAGE: German

L1 ANSWER 30 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB C6H6, alkylbenzenes, or halobenzenes were subjected to electrolytic redn. in the presence of an inorg. **electrolyte** in a mixt. of alkylphosphamide and alc. E.g., C6H6 was electrolytically reduced in hexamethylphosphoramide-MeOH with LiCl **electrolyte** to give a mixt. of 1,4-**cyclohexadiene**, 1,3-**cyclohexadiene**, hexene, and hexane (53:2:21:24).
ACCESSION NUMBER: 1973:3805 CAPLUS
DOCUMENT NUMBER: 78:3805
TITLE: Selective electrolytic reduction of benzene and its derivatives
INVENTOR(S): Asahara, Shozo; Senoo, Manabu

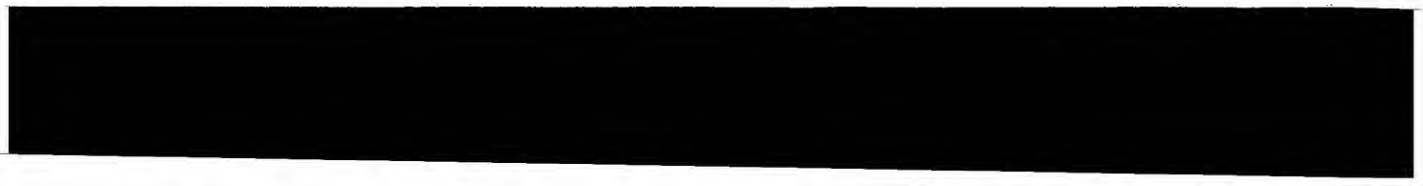
PATENT ASSIGNEE(S): Asahi Chemical Industry Co., Ltd.
SOURCE: Jpn. Tokkyo Koho, 4 pp.
CODEN: JAXXAD
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 47040786	B4	19721016	JP 1968-90355	19681210

L1 ANSWER 31 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB .pi.-C6H6RuCl2 was obtained by treating 1,3-**cyclohexadiene** with RuCl3 in aq. EtOH. .pi.-C6H6RuCl2 was monomeric in H2O, MeCN, and Me2SO. It was a 2/1 **electrolyte** in H2O and a non-**electrolyte** in MeCN. .pi.-C6H6RuBr2 and .pi.-C6H6RuI2 were formed by exchange reactions in H2O. Complexes .pi.-C6H6RuCl2L (L = PPh3, PMePh2, PMe2Ph, PBu3, . . .
ACCESSION NUMBER: 1972:85906 CAPLUS
DOCUMENT NUMBER: 76:85906
TITLE: Reactions of benzene complexes of ruthenium(II)
AUTHOR(S): Zelonka, R. A.; Baird, M. C.
CORPORATE SOURCE: Dep. Chem., Queen's Univ., Kingston, ON, Can.
SOURCE: Journal of Organometallic Chemistry (1972), 35(1), C43-C46
CODEN: JORCAI; ISSN: 0022-328X
DOCUMENT TYPE: Journal
LANGUAGE: English

L1 ANSWER 32 OF 32 CAPLUS COPYRIGHT 2003 ACS
AB Substituted cyclohexenes and cyclohexadienes contg. 5-8 F atoms on the ring were electrolytically reduced in an alk. **electrolyte** with removal of F atoms to form fluorinated benzenes. For example, a diaphragm cell with a Hg cathode was filled with a catholyte contg. 5.3 g octafluoro-1,3-**cyclohexadiene** (I), 100 g AcOK, 100 ml H2O, and 150 ml EtOH and adjusted to pH 7.1 with AcOH. A Pt anode and **electrolyte** contg. 400 g AcOK/l. H2O were put in the anode compartment. N gas was bubbled through the stirred catholyte to. . . g pentafluorobeznene. In other examples tetrafluorobenzenes, 2,4,5,6-tetrafluoro-1,3-phenylenediamine, 2,4,5,6-tetrafluoro-1,3-aminophenol, 2,5,6-trifluoro-N,N'-dimethyl-1,3-phenylenediamine, 4,5,6-trifluoro-2-trifluoromethyl-1,3-phenylenediamine, 2,4,5,6-tetrafluoro-1,3-isopropylaminophenol and 1,2,3,4,5-pentafluorophenetole were made. Alc. was added to the **electrolyte** to help solubilize the reactant. The cathode was operated .apprx.0.3 V more neg. than the polarog. half-wave potential obtained in an **electrolyte** contg. Me4NCl.
ACCESSION NUMBER: 1971:444321 CAPLUS
DOCUMENT NUMBER: 75:44321
TITLE: Electrolytic reduction process for preparing fluorinated benzenes
INVENTOR(S): Pedlar, Alan E.; Tatlow, John C.
PATENT ASSIGNEE(S): Canning, W. and Co., Ltd.
SOURCE: Brit., 5 pp.
CODEN: BRXXAA
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1232285		19710519	GB	19680614



=> s cyclohexadiene and battery
12056 CYCLOHEXADIENE
96876 BATTERY
L2 19 CYCLOHEXADIENE AND BATTERY

=> d l2 1-19 kwic ibib

L2 ANSWER 1 OF 19 CAPLUS COPYRIGHT 2003 ACS

TI Lithium secondary **battery** with nonaqueous electrolyte containing cyclic unsaturated hydrocarbon and fluorine-containing solute for improved charge -discharge cycle characteristic

AB A Li secondary **battery** comprises a cathode, an anode from a carbon material, and a nonaq. electrolyte comprising a nonaq. solvent contg. 0.3-7 vol.%, . . . cyclobutene, cyclopentene, cyclohexene, cycloheptene, cyclooctene, cyclononene, and cyclodecene. The F-contg. solute has P-F bond or B-F bond. The Li secondary **battery** has excellent charge-discharge cycle characteristic.

ST lithium secondary **battery** nonaq electrolyte cyclic unsatd hydrocarbon

IT Coke
RL: TEM (Technical or engineered material use); USES (Uses)
(anode from; lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

IT Secondary batteries
(lithium; lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

IT Electrolytes
(nonaq.; lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

IT Hydrocarbons, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(unsatd., cyclic; lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

IT 7782-42-5, Graphite, uses 12031-95-7, Lithium titanate (Li4Ti5O12)
RL: TEM (Technical or engineered material use); USES (Uses)
(anode from; lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

IT 21324-40-3, Lithium hexafluorophosphate (LiPF6)
RL: TEM (Technical or engineered material use); USES (Uses)
(electrolyte contg.; lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

IT 110-83-8, Cyclohexene, uses 142-29-0, Cyclopentene 628-92-2, Cycloheptene 822-35-5, Cyclobutene 931-88-4, Cyclooctene 3618-11-9, Cyclononene 3618-12-0, Cyclodecene
RL: TEM (Technical or engineered material use); USES (Uses)
(lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

IT 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 592-57-4, 1,3-**Cyclohexadiene**
RL: TEM (Technical or engineered material use); USES (Uses)
(nonaq. electrolyte contg.; lithium secondary **battery** with nonaq. electrolyte contg. cyclic unsatd. hydrocarbon and fluorine-contg. solute for improved charge -discharge cycle characteristic)

ACCESSION NUMBER: 2002:735451 CAPLUS
DOCUMENT NUMBER: 137:265656
TITLE: Lithium secondary **battery** with nonaqueous electrolyte containing cyclic unsaturated hydrocarbon and fluorine-containing solute for improved charge -discharge cycle characteristic
INVENTOR(S): Kita, Yoshinori; Kinoshita, Akira; Yanagida,

Katsunori; Noma, Toshiyuki; Yonezu, Ikuo
PATENT ASSIGNEE(S): Sanyo Electric Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2002280062	A2	20020927	JP 2001-73521	20010315

PRIORITY APPLN. INFO.: JP 2001-73521 20010315

L2 ANSWER 2 OF 19 CAPLUS COPYRIGHT 2003 ACS
TI Solid electrolyte **battery**
ST **battery** solid electrolyte
IT Sulfonic acids, uses
RL: DEV (Device component use); USES (Uses)
(alkanesulfonic; solid electrolyte **battery** contg. diene compd.)
IT Secondary batteries
(lithium; solid electrolyte **battery** contg. diene compd.)
IT Polysulfones, uses
RL: DEV (Device component use); USES (Uses)
(polyether-; solid electrolyte **battery** contg. diene compd.)
IT Polyethers, uses
RL: DEV (Device component use); USES (Uses)
(polysulfone-; solid electrolyte **battery** contg. diene compd.)
IT **Battery** anodes
Battery cathodes
Battery electrolytes
(solid electrolyte **battery** contg. diene compd.)
IT Fluoropolymers, uses
Polycarbonates, uses
Polyoxyalkylenes, uses
Polysulfones, uses
RL: DEV (Device component use); USES (Uses)
(solid electrolyte **battery** contg. diene compd.)
IT Cycloalkadienes
RL: MOA (Modifier or additive use); USES (Uses)
(solid electrolyte **battery** contg. diene compd.)
IT 60-29-7, Diethyl ether, uses 67-68-5, Dmso, uses 75-05-8, Acetonitrile, uses 96-47-9, 2-Methyltetrahydrofuran 96-48-0, .gamma.-Butyrolactone 96-49-1, Ethylene carbonate 105-58-8, Diethyl carbonate 108-32-7, Propylene carbonate 109-99-9, Tetrahydrofuran, uses 110-71-4, 1,2-Dimethoxyethane 452-10-8, 2,4-Difluoroanisole 616-38-6, Dimethyl carbonate 646-06-0, 1,3-Dioxolane 872-36-6, Vinylene carbonate 7550-35-8, Lithium bromide 7782-42-5, Graphite, uses 7789-24-4, Lithium fluoride, uses 7791-03-9, Lithium perchlorate 9002-84-0, Ptfe 9003-05-8, Polyacryl amide 12190-79-3, cobalt lithium oxide colio2 14283-07-9, Lithium tetrafluoroborate 21324-40-3, Lithium hexafluorophosphate 24937-79-9, Polyvinylidene fluoride 25087-26-7, Polymethacrylic acid 25322-68-3, Peo 25322-69-4, Polypropylene oxide 29935-35-1, Lithium hexafluoroarsenate 33454-82-9, Lithium triflate 90076-65-6 131651-65-5, Lithium perfluorobutanesulfonate 132404-42-3
RL: DEV (Device component use); USES (Uses)
(solid electrolyte **battery** contg. diene compd.)
IT 628-41-1, 1,4-**Cyclohexadiene**
RL: MOA (Modifier or additive use); USES (Uses)
(solid electrolyte **battery** contg. diene compd.)
IT 9011-17-0, Hexafluoropropylene-vinylidene fluoride copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(solid electrolyte **battery** contg. diene compd.)

ACCESSION NUMBER: 2001:676382 CAPLUS
DOCUMENT NUMBER: 135:213509
TITLE: Solid electrolyte **battery**
INVENTOR(S): Hara, Tomitaro; Shibuya, Mashio; Suzuki, Yusuke
PATENT ASSIGNEE(S): Sony Corp., Japan
SOURCE: Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1132987	A2	20010912	EP 2001-105134	20010302
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2001256999	A2	20010921	JP 2000-72512	20000310
NO 20010012 10	A	20010911	NO 2001-1210	20010309
CN 1319906	A	20011031	CN 2001-111305	20010309
US 2002015885	A1	20020207	US 2001-803561	20010309

PRIORITY APPLN. INFO.: JP 2000-72512 A 20000310

L2 ANSWER 3 OF 19 CAPLUS COPYRIGHT 2003 ACS
AB Emissions from flares typical like at oil-field **battery** sites in Alberta, Canada, were examd. to det. the degree to which the flared gases were burned and to characterize. . . . gas/condensate flames by causing more unburned fuel and pyrolytically-produced hydrocarbons to escape into the emissions. Flaring soln. gas at oil-field **battery** sites burned with an efficiency of 62-82%, depending on how much fuel was directed to flare or how much liq.. . .

IT 50-32-8, Benzo(a)pyrene, occurrence 65-85-0, Benzoic acid, occurrence 71-43-2, Benzene, occurrence 86-73-7, 9H-Fluorene 90-00-6, 2-Ethylphenol 90-12-0, 1-Methylnaphthalene 91-20-3, Naphthalene, occurrence 91-57-6, 2-Methylnaphthalene 92-52-4, 1,1'-Biphenyl, occurrence 95-48-7, 2-Methylphenol, occurrence 95-63-6, 1,2,4-Trimethylbenzene 95-87-4, 2,5-Dimethylphenol 95-93-2, 1,2,4,5-Tetramethylbenzene 98-82-8, (1-Methylethyl)-benzene 99-87-6, 1-Methyl-4-(1-methylethyl)benzene 100-41-4, Ethylbenzene, occurrence 100-42-5, Ethenylbenzene, occurrence 103-65-1, Propylbenzene 104-87-0, 4-Methylbenzaldehyde 106-42-3, 1,4-Dimethylbenzene, occurrence 106-44-5, 4-Methylphenol, occurrence 108-67-8, 1,3,5-Trimethylbenzene, occurrence 108-68-9, 3,5-Dimethylphenol 108-87-2, Methylcyclohexane 108-88-3, Methylbenzene, occurrence 109-66-0, Pentane, occurrence 110-54-3, Hexane, occurrence 110-82-7, Cyclohexane, occurrence 111-65-9, Octane, occurrence 111-84-2, Nonane 112-40-3, Dodecane 120-12-7, Anthracene, occurrence 124-18-5, Decane 129-00-0, Pyrene, occurrence 142-82-5, Heptane, occurrence 192-97-2, Benzo(e)pyrene 203-64-5, 4H-Cyclopenta(def)phenanthrene 206-44-0, Fluoranthene 208-96-8, Acenaphthylene 217-59-4, Triphenylene 218-01-9, Chrysene 232-95-1, Naphtho[2,1-B]furan 238-84-6, 11H-Benzo(a)fluorene 243-17-4, 11H-Benzo(b)fluorene 259-79-0, Biphenylene 488-23-3, 1,2,3,4-Tetramethylbenzene 527-53-7, 1,2,3,5-Tetramethylbenzene 536-74-3, Ethynylbenzene 562-49-2, 3,3-Dimethylpentane 571-58-4, 1,4-Dimethylnaphthalene 571-61-9, 1,5-Dimethylnaphthalene 575-37-1, 1,7-Dimethylnaphthalene 581-40-8, 2,3-Dimethylnaphthalene 589-34-4, 3-Methylhexane 611-14-3, 1-Ethyl-2-methylbenzene 611-15-4, 1-Ethenyl-2-methyl-benzene 613-12-7, 2-Methylanthracene 613-59-2, 2-(Phenylmethyl)naphthalene 619-99-8, 3-Ethylhexane 620-83-7, 1-Methyl-4-(phenylmethyl)benzene 638-04-0, cis-1,3-Dimethylcyclohexane 643-93-6, 3-Methyl-1,1'-biphenyl 700-12-9, Pentamethylbenzene 713-36-0, 1-Methyl-2-(phenylmethyl)benzene 832-71-3, 3-Methylphenanthrene 844-51-9, 2,5-**Cyclohexadiene**-1,4-dione, 2,5-Diphenyl- 886-66-8, Benzene, 1,1'-(1,3-Butadiyne-1,4-diyl)bis-

922-28-1, 3,4-Dimethylheptane 933-98-2, 1-Ethyl-2,3-dimethylbenzene
934-80-5, 4-Ethyl-1,2-dimethylbenzene 939-27-5, 2-Ethylnaphthalene
1074-17-5, 1-Methyl-2-propylbenzene 1120-21-4, Undecane 1196-58-3,
(1-Ethylpropyl)benzene 1430-97-3, 2-Methyl-9H-fluorene 1576-67-6,
3,6-Dimethylphenanthrene 1678-91-7, Ethylcyclohexane 1678-98-4,
(2-Methylpropyl)-cyclohexane 1730-37-6, 1-Methyl-9H-fluorene
1812-51-7, 1,1'-Biphenyl, 2-Ethyl- 1839-63-0, 1,3,5-Trimethylcyclohexane
2049-95-8, (1,1-Dimethylpropyl)benzene 2050-24-0, 1,3-Diethyl-5-
methylbenzene 2051-30-1, 2,6-Dimethyloctane 2131-41-1,
1,4,5-Trimethylnaphthalene 2131-42-2, 1,4,6-Trimethylnaphthalene
2206-23-7, 3-Penten-1-yne 2234-75-5, 1,2,4-Trimethylcyclohexane
2452-99-5, 1,2-Dimethylcyclopentane 2531-84-2, 2-Methylphenanthrene
2610-95-9 3061-36-7, 1,4-Diphenoxybenzene 3379-37-1, Benzene,
1,2-Diphenoxy- 3442-78-2, 2-Methylpyrene 3674-65-5,
2,3-Dimethylphenanthrene 3674-66-6, 2,5-Dimethylphenanthrene
3674-73-5, 2,3,5-Trimethylphenanthrene 3855-26-3, 2-Ethyl-4-methylphenol
4425-82-5, 9-Methylene-9H-fluorene 4489-84-3, (3-Methyl-2-
butenyl)benzene 4612-63-9, 2,3-Dimethyl-9H-fluorene 4957-14-6
5911-04-6, 3-Methylnonane 6975-92-4, 2,5-Dimethyl-1-hexene 13151-34-3,
3-Methyldecane 14064-48-3 17057-82-8 17302-23-7, 4,5-Dimethylnonane
21895-13-6 21895-16-9 22364-43-8 25155-15-1, Methyl(1-
methylethyl)benzene 25340-17-4, Diethylbenzene 29053-04-1,
Cyclopentane, 1-Methyl-3-(2-methylpropyl)- 55712-60-2,
Benzo(b)thiophene, 3-(2-Naphthalenyl)- 61142-07-2 74685-42-0,
1-Methyl-2-(2-phenylethenyl)benzene
RL: OCU (Occurrence, unclassified); OCCU (Occurrence)
(flame type, condensates and other liq. droplets during gaseous fuel flaring, and cross-winds effect on chem. compn. of oil and gas industry diffusion flare system emissions, Canada)

ACCESSION NUMBER: 2000:809760 CAPLUS
DOCUMENT NUMBER: 134:46039
TITLE: Characterization of emissions from diffusion flare systems
AUTHOR(S): Strosher, Mel T.
CORPORATE SOURCE: Alberta Research Council, Calgary, AB, Can.
SOURCE: Journal of the Air & Waste Management Association (2000), 50(10), 1723-1733
CODEN: JAWAFC; ISSN: 1096-2247
PUBLISHER: Air & Waste Management Association
DOCUMENT TYPE: Journal
LANGUAGE: English
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 4 OF 19 CAPLUS COPYRIGHT 2003 ACS
AB . . . electrolytes have polyaniline or benzoquinone cathodes contg. vapor phase epitaxial C as conductive aid and poly(vinylidene fluoride) as binder. The **battery** anode is polypyrrole.
ST **battery** laminated polymer gel electrolyte; polyaniline polypyrrole **battery** laminated electrolyte; benzoquinone polypyrrole **battery** laminated electrolyte
IT **Battery** electrolytes
(polymer electrolytes laminated with gelled electrolytes or electrolyte solns. for batteries with polymer electrodes)
IT 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses 25233-30-1, Polyaniline
RL: DEV (Device component use); USES (Uses)
(cathodes in batteries using polymer electrolytes laminated with gelled electrolytes or electrolyte solns.)

ACCESSION NUMBER: 2000:88490 CAPLUS
DOCUMENT NUMBER: 132:110649
TITLE: Laminated electrolytes and batteries using the electrolytes
INVENTOR(S): Harada, Manabu; Nishiyama, Toshihiko; Fujiwara,

[redacted]

Masaki; Okada, Shinako
PATENT ASSIGNEE(S): NEC Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000040527	A2	20000208	JP 1998-208067	19980723
JP 3257516	B2	20020218		
US 6413675	B1	20020702	US 1999-353384	19990715

PRIORITY APPLN. INFO.: JP 1998-208067 A 19980723

L2 ANSWER 5 OF 19 CAPLUS COPYRIGHT 2003 ACS
ST **battery** conducting polymer electrode
IT 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses 25233-30-1, Polyaniline
RL: DEV (Device component use); USES (Uses)
(cathodes for secondary polymer batteries)
ACCESSION NUMBER: 1999:665442 CAPLUS
DOCUMENT NUMBER: 131:260021
TITLE: Polymer batteries
INVENTOR(S): Okada, Shinako; Nishiyama, Toshihiko; Harada, Manabu; Fujiwara, Masaki
PATENT ASSIGNEE(S): NEC Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11288740	A2	19991019	JP 1998-90174	19980402

PRIORITY APPLN. INFO.: JP 1998-90174 19980402

L2 ANSWER 6 OF 19 CAPLUS COPYRIGHT 2003 ACS
ST lithium **battery** cathode redox conducting polymer; polyquinoid lithium **battery** cathode; polyamide redox lithium **battery** cathode; reduced redox polymer **battery** cathode
IT **Battery** cathodes
(redox and elec. conducting polyquinoid and related polymers for use as cathode materials in lithium batteries)
IT 144-62-7DP, Oxalic acid, salts 319-89-1DP, 2,5-**Cyclohexadiene**-1,4-dione, 2,3,5,6-tetrahydroxy-, salts 476-66-4DP, Ellagic acid, salts 488-86-8DP, 4-Cyclopentene-1,2,3-trione, 4,5-dihydroxy, salts 504-89-2DP, Diazenedicarboxylic acid, salts 13021-40-4P, 5-Cyclohexene-1,2,3,4-tetrone, 5,6-dihydroxy-, dipotassium salt 13568-33-7DP, Lithium nitrite, reaction products with carbon monoxide-ethylene alternating copolymer 32337-43-2P, 5-Cyclohexene-1,2,3,4-tetrone, 5,6-dihydroxy-, dilithium salt 52094-54-9P, Poly[imino(1,2-dioxo-1,2-ethanediyl)imino-1,4-phenylene] 52427-61-9P, Dipotassium dithiosquarate 61169-36-6DP, 9,10-Anthracenedione, 1,2,4,5,6,8-hexahydroxy-, salts 73727-57-8P, Dimethyl oxalate-1,4-phenylenediamine copolymer 111190-67-1DP, Ethene, polymer with carbon monoxide, alternating, reaction products with lithium nitrite 121242-09-9P, 1,2,3,4-Cyclohexanetetrone, 5,6-dihydroxy- 227322-06-7P 227322-07-8P 227322-08-9P 227322-09-0P 227322-10-3DP, reduced 227322-12-5DP, oxidized 227322-12-5P 227322-13-6P 227322-14-7P 227322-15-8P 227322-18-1DP, reduced 227322-18-1P

[redacted]

227322-20-5P 227322-21-6P 227322-22-7P 227322-23-8DP, salts, oxidized
RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(cathodes; redox and elec. conducting polyquinoid and related polymers for use as cathode materials in lithium batteries)

ACCESSION NUMBER: 1999:375783 CAPLUS
DOCUMENT NUMBER: 131:47161
TITLE: Redox and electrically conducting polyquinoid and related polymers for use as cathode materials in electrochemical generators, especially lithium batteries
INVENTOR(S): Armand, Michel; Michot, Christophe; Ravet, Nathalie
PATENT ASSIGNEE(S): Acep Inc., Can.; Centre National de la Recherche Scientifique (CNRS); Universite de Montreal
SOURCE: PCT Int. Appl., 37 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9928984	A1	19990610	WO 1998-CA1125	19981202
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
AU 9914779	A1	19990616	AU 1999-14779	19981202
EP 966769	A1	19991229	EP 1998-958756	19981202
R: DE, FR, GB, IT				
JP 2001512526	T2	20010821	JP 1999-529560	19981202

PRIORITY APPLN. INFO.: CA 1997-2223562 A 19971202
WO 1998-CA1125 W 19981202
REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 7 OF 19 CAPLUS COPYRIGHT 2003 ACS
ST polyaniline quinone cathode **battery**; polypyridine quinone anode **battery**; electrode manuf polymer quinone **battery**
IT **Battery** anodes
Battery cathodes
Battery electrodes
Conducting polymers
(composite electrodes contg. N-contg. polymers and quinone compds. for batteries)
IT 84-65-1, Anthraquinone 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses
RL: DEV (Device component use); USES (Uses)
(composite electrodes contg. N-contg. polymers and quinone compds. for batteries)

ACCESSION NUMBER: 1999:341099 CAPLUS
DOCUMENT NUMBER: 130:354777
TITLE: Composite polymer electrodes for batteries and their manufacture
INVENTOR(S): Nishiyama, Toshihiko; Kurihara, Junko; Harada, Manabu; Sakata, Koji; Okada, Shinako
PATENT ASSIGNEE(S): NEC Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 9 pp.

[redacted]

CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11144732	A2	19990528	JP 1997-302150	19971104
JP 3168962	B2	20010521		
US 6248474	B1	20010619	US 1998-185589	19981104

PRIORITY APPLN. INFO.: JP 1997-302150 A 19971104

L2 ANSWER 8 OF 19 CAPLUS COPYRIGHT 2003 ACS

AB The present invention provides a polymer secondary **battery** comprising a pair of current collectors and electrodes arranged in opposed relationship with an electrolytic soln.-contg. separator or a solid electrolyte interposed there between, the polymer secondary **battery** having a structure in which a first active material layer adjacent to the current collector of the anode has laminated. . . chem. species and having a formal oxidn.-redn. potential higher than that of the first active material layer. This polymer secondary **battery** has a high rate of appearance of capacity, is capable of quick charging and discharging, and exhibits excellent cycle characteristics.

ST polymer secondary **battery** quick charging discharging

IT Heterocyclic compounds
RL: DEV (Device component use); USES (Uses)
(nitrogen, polymers; polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT **Battery** anodes
Secondary batteries
(polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT Butyl rubber, uses
RL: DEV (Device component use); USES (Uses)
(polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT Fluoropolymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT 112-34-5, 2-(2-Butoxyethoxy)ethanol
RL: TEM (Technical or engineered material use); USES (Uses)
(b.p. modifier; polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT 9010-85-9
RL: DEV (Device component use); USES (Uses)
(butyl rubber, polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT 85-70-1, Butyl phthalyl butyl glycolate
RL: TEM (Technical or engineered material use); USES (Uses)
(plasticizer; polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT 7440-44-0, Carbon, uses 25013-01-8, Polypyridine 25233-30-1, Polyaniline 26745-90-4, 2,5-**Cyclohexadiene**-1,4-dione homopolymer 88374-66-7, Benzenamine, 2,5-dimethoxy-, homopolymer 97917-08-3, Benzenamine, 2-methyl-, homopolymer
RL: DEV (Device component use); USES (Uses)
(polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

IT 26101-52-0, Polyvinylsulfonic acid
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(polymer secondary **battery** with high rate of appearance of

capacity and quick charging and discharging)
IT 872-50-4, n-Methylpyrrolidone, uses 24937-79-9, Polyvinylidene fluoride
RL: TEM (Technical or engineered material use); USES (Uses)
(polymer secondary **battery** with high rate of appearance of capacity and quick charging and discharging)

ACCESSION NUMBER: 1999:279821 CAPLUS
DOCUMENT NUMBER: 130:284498
TITLE: Polymer secondary batteries
INVENTOR(S): Harada, Gaku; Sakata, Koji; Kurihara, Junko; Okada, Shinako
PATENT ASSIGNEE(S): NEC Corporation, Japan
SOURCE: Eur. Pat. Appl., 14 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 911894	A1	19990428	EP 1998-119870	19981020
EP 911894	B1	20010411		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11126609	A2	19990511	JP 1997-290943	19971023
JP 3111945	B2	20001127		
US 6099989	A	20000808	US 1998-174312	19981019

PRIORITY APPLN. INFO.: JP 1997-290943 A 19971023
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 9 OF 19 CAPLUS COPYRIGHT 2003 ACS
TI Polymer secondary **battery** with rapid charge and discharge
AB A polymer **battery** is herein disclosed which comprises a pair of electrodes for carrying out the receipt and release of electrons in accordance. . . . of a produced hydroxyl group under the control of a proton concn. and a working voltage. The thus constituted polymer **battery** enables rapid charge and discharge and is excellent in cycle rapid charge and discharge.
ST polymer **battery** electrode electrolyte
IT Polymerization
(chem.; polymer secondary **battery** with rapid charge and discharge)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(fluorine- and sulfo-contg., ionomers; polymer secondary **battery** with rapid charge and discharge)
IT Polyoxyalkylenes, uses
RL: DEV (Device component use); USES (Uses)
(fluorine-contg., sulfo-contg., ionomers; polymer secondary **battery** with rapid charge and discharge)
IT **Battery** electrodes
Battery electrolytes
Secondary batteries
(polymer secondary **battery** with rapid charge and discharge)
IT Fluoropolymers, uses
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(polymer secondary **battery** with rapid charge and discharge)
IT Fluoropolymers, uses
Fluoropolymers, uses
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylene-, sulfo-contg., ionomers; polymer secondary **battery** with rapid charge and discharge)

IT Ionomers
RL: DEV (Device component use); USES (Uses)
(polyoxyalkylenes, fluorine- and sulfo-contg.; polymer secondary **battery** with rapid charge and discharge)
IT 26101-52-0, Polyvinylsulfonic acid
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(polyaniline-doped; polymer secondary **battery** with rapid charge and discharge)
IT 68-12-2, Dmf, uses 76-05-1, Trifluoroacetic acid, uses 84-65-1, Anthraquinone 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses 108-32-7, Propylene carbonate 7440-44-0, Carbon, uses 12679-43-5, Naphthaquinone 25013-01-8, Polypyridine 30604-81-0, Polypyrrole 190201-51-5, Pyrimidine homopolymer
RL: DEV (Device component use); USES (Uses)
(polymer secondary **battery** with rapid charge and discharge)
IT 25233-30-1, Polyaniline
RL: DEV (Device component use); MOA (Modifier or additive use); USES (Uses)
(polymer secondary **battery** with rapid charge and discharge)
IT 24937-79-9, Polyvinylidene fluoride
RL: MOA (Modifier or additive use); TEM (Technical or engineered material use); USES (Uses)
(polymer secondary **battery** with rapid charge and discharge)

ACCESSION NUMBER: 1999:279820 CAPLUS
DOCUMENT NUMBER: 130:284497
TITLE: Polymer secondary **battery** with rapid charge and discharge
INVENTOR(S): Okada, Shinako; Nishiyama, Toshihiko; Kurihara, Junko; Sakata, Koji; Harada, Gaku
PATENT ASSIGNEE(S): NEC Corporation, Japan
SOURCE: Eur. Pat. Appl., 20 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 911893	A1	19990428	EP 1998-119869	19981020
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 11126610	A2	19990511	JP 1997-292598	19971024
JP 3039484	B2	20000508		

PRIORITY APPLN. INFO.: JP 1997-292598 A 19971024
REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L2 ANSWER 10 OF 19 CAPLUS COPYRIGHT 2003 ACS
ST nonaq **battery** electrolyte optical stabilizing agent; naphthoquinone **battery** electrolyte stabilizing agent; fluorene **battery** electrolyte stabilizing agent; epoxide **battery** electrolyte stabilizing agent; hindered amine **battery** electrolyte stabilizing agent; phenylpicrylhydrazyl deriv **battery** electrolyte stabilizing agent
IT **Battery** electrolytes
(nonaq. electrolyte solns. contg, optical stabilizing agents for secondary lithium batteries)
IT 86-73-7, Fluorene 95-14-7, 1H-Benzotriazole 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses 122-60-1, 1,2-Epoxy-3-phenoxypropane 130-15-4, 1,4-Naphthalenedione 1707-75-1, 1,1-Diphenyl-2-picrylhydrazine
RL: MOA (Modifier or additive use); USES (Uses)

[redacted]

(nonaq. electrolyte solns. contg, optical stabilizing agents for secondary lithium batteries)

ACCESSION NUMBER: 1999:113260 CAPLUS
DOCUMENT NUMBER: 130:141661
TITLE: Secondary nonaqueous electrolyte batteries
INVENTOR(S): Sakai, Kenichi; Yamamoto, Kenji; Ueda, Naoki; Urushibara, Masaru
PATENT ASSIGNEE(S): Nippon Denso Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11040194	A2	19990212	JP 1997-192239	19970717

PRIORITY APPLN. INFO.: JP 1997-192239 19970717

L2 ANSWER 11 OF 19 CAPLUS COPYRIGHT 2003 ACS
AB . . . properties (such as tensile strength, elongation and softening point) than primary (std.-grade) polyolefins, and useful for pipes, motor-vehicle bumpers and storage-**battery** containers. Thus, a pretreated recycled polypropylene was mixed with polyethylsiloxane at 125.degree. for 2 h, dried, then extruded at 160-180.degree.. . .
IT 106-51-4, 2,5-**Cyclohexadiene**-1,4-dione, uses
RL: MOA (Modifier or additive use); USES (Uses)
(crossliking agents; reclamation of polyolefins by adding activated filler into modified recycled polyolefins)
ACCESSION NUMBER: 1997:453898 CAPLUS
DOCUMENT NUMBER: 127:67061
TITLE: Reclamation of polyolefins by adding activated filler into modified recycled polyolefins
INVENTOR(S): Boulgakov, Viktor; Pikous, Eugeni; Djavakhichvili, Gueorguie
PATENT ASSIGNEE(S): Pheniplastics S.A., Liechtenstein
SOURCE: Eur. Pat. Appl., 7 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 776930	A1	19970604	EP 1995-810742	19951129
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
CA 2191650	AA	19970530	CA 1996-2191650	19961129
JP 09272743	A2	19971021	JP 1996-320168	19961129

PRIORITY APPLN. INFO.: EP 1995-810742 19951129

L2 ANSWER 12 OF 19 CAPLUS COPYRIGHT 2003 ACS
ST lithium **battery** electrolyte solvent cyclic hydrocarbon
IT **Battery** electrolytes
(solvents contg. unconjugated unsatd. cyclic hydrocarbons)
IT 111-78-4, 1,5-Cyclooctadiene 592-57-4, 1,3-**Cyclohexadiene**
628-41-1, 1,4-**Cyclohexadiene** 19111-23-0, 1,5,9-Cyclodecatriene
RL: DEV (Device component use); USES (Uses)
(lithium **battery** electrolyte contg.)
ACCESSION NUMBER: 1997:250163 CAPLUS
DOCUMENT NUMBER: 126:227670
TITLE: Electrolyte solvent for secondary nonaqueous-electrolyte lithium batteries

[redacted]

INVENTOR(S): Arai, Juichi; Ito, Yutaka; Imazeki, Shuji
PATENT ASSIGNEE(S): Hitachi Ltd, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF

DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09035746	A2	19970207	JP 1995-182418	19950719

PRIORITY APPLN. INFO.: JP 1995-182418 19950719

L2 ANSWER 13 OF 19 CAPLUS COPYRIGHT 2003 ACS
AB An electrochem. and Raman spectroscopic study on polyaniline consisting of 1,4-iminophenylene (IP, -NHC6H4-) and nitrilo-2,5-**cyclohexadiene**-1,4-diylidenenitrilo-1,4-phenylene (NP, -N=C6H4=NC6H4-) units has proved that the NP part is electrochem. inactive in nonaq. electrolytes in spite of its conjugated. . . of polyaniline. Hence, polyaniline contg. the NP structure is not suitable for the pos. electrode material of a rechargeable lithium **battery**.
ACCESSION NUMBER: 1990:599987 CAPLUS
DOCUMENT NUMBER: 113:199987
TITLE: The quinone diimine part of polyaniline is electrochemically inactive in nonaqueous electrolyte
AUTHOR(S): Ueda, F.; Mukai, K.; Harada, I.; Nakajima, T.; Kawagoe, T.
CORPORATE SOURCE: Pharm. Inst., Tohoku Univ., Sendai, 980, Japan
SOURCE: Macromolecules (1990), 23(23), 4925-8
CODEN: MAMOBX; ISSN: 0024-9297
DOCUMENT TYPE: Journal
LANGUAGE: English

L2 ANSWER 14 OF 19 CAPLUS COPYRIGHT 2003 ACS
TI Polyaniline: structural analysis and application for **battery**
AB . . . solely of imino-1,4-phenylene (II), doped I consists of II and II radical cation, base-treated doped I consists of II and nitrilo-2,5-**cyclohexadiene**-1,4-diylidenenitrilo-1,4-phenylene, and reduced I consists of II and its cation. Only the II radical cation plays an important role in elec.. . . finite d. of states in the Fermi level; the interconversion between II and II radical cation is essential for rechargeable **battery** operation. The specifications and applications of Li-I batteries are described.
ST polyaniline structure redox system **battery**; lithium polyaniline **battery** mechanism structure
IT Electric conductivity and conduction
(of polyaniline, phenylene radical cation interconversion effect on, for **battery** cathodes)
IT Cathodes
(**battery**, polyaniline, structural anal. of, for lithium batteries)
ACCESSION NUMBER: 1989:157624 CAPLUS
DOCUMENT NUMBER: 110:157624
TITLE: Polyaniline: structural analysis and application for **battery**
AUTHOR(S): Nakajima, T.; Kawagoe, T.
CORPORATE SOURCE: Tech. Res. Lab., Bridgestone Corp., Kodaira, 187, Japan
SOURCE: Synthetic Metals (1989), 28(1-2), C629-C638
CODEN: SYMEDZ; ISSN: 0379-6779
DOCUMENT TYPE: Journal
LANGUAGE: English

L2 ANSWER 15 OF 19 CAPLUS COPYRIGHT 2003 ACS
ST quinone hydroquinone secondary **battery**; redox voltammetry quinone hydroquinone; chloranil redox voltammetry; naphthoquinone redox voltammetry; anthraquinone redox voltammetry; duroquinone redox voltammetry
IT 1,4-Benzenediol, derivs.
2,5-**Cyclohexadiene**-1,4-dione, derivs.
RL: PRP (Properties)
(electrochem. properties of, in aq. electrolytes)
ACCESSION NUMBER: 1976:97113 CAPLUS
DOCUMENT NUMBER: 84:97113
TITLE: Electrochemical properties of very slightly soluble quinones in aqueous electrolytes
AUTHOR(S): Binder, H.; Koehling, A.; Sandstede, G.
CORPORATE SOURCE: Battelle-Inst. e.V., Frankfurt/Main, Fed. Rep. Ger.
SOURCE: Berichte der Bunsen-Gesellschaft (1976), 80(1), 66-77
CODEN: BBPCAX; ISSN: 0940-483X
DOCUMENT TYPE: Journal
LANGUAGE: German

L2 ANSWER 16 OF 19 CAPLUS COPYRIGHT 2003 ACS
AB The known submarine dual propulsion systems have a fuel cell **battery** for low-speed propulsion and a steam turbine for high-speed propulsion. The problems of fuel storage were improved by the use. . . fuel cell), plus the corresponding aromatic hydrocarbon (fed tothe combustion chamber of the steam turbine). Suitable I are: cyclohexane, cyclohexene, **cyclohexadiene**, decalin, tetralin; etc.
ACCESSION NUMBER: 1972:516590 CAPLUS
DOCUMENT NUMBER: 77:116590
TITLE: Supplying a propulsion unit with fuel
INVENTOR(S): Von Krusenstierna, Otto
PATENT ASSIGNEE(S): Allmanna Svenska Elektriska Aktiebolag
SOURCE: Brit., 5 pp.
CODEN: BRXXAA
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 1280870		19720705		
PRIORITY APPLN. INFO.:			SE 1968-13640	19681009

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IT Cathodes
(**battery**, tetracyanoquinondimethan as primary)
IT 2,5-**Cyclohexadiene**-.DELTA.1,.alpha.:4,.alpha.'-dimalononitrile, radical ion(1-), 3-benzyl-2,5-dimethylbenzothiazolium, compd. with 2,5-**cyclohexadiene**-.DELTA.1,.alpha.:4,.alpha.'-dimalononitrile (1:1)
Benzothiazolium, 3-benzyl-2,5-dimethyl-, salt with 2,5-**cyclohexadiene**-.DELTA.1,/alpha.:4,:alpha.'-dimalononitrile (1:2)
RL: PRP (Properties)
(cathodes, in primary cell with magnesium)
ACCESSION NUMBER: 1969:418086 CAPLUS
DOCUMENT NUMBER: 71:18086
TITLE: Organic semiconductors as galvanic cell cathodes
AUTHOR(S): Weidenthaler, P.; Pelinka, E.
CORPORATE SOURCE: A. Zapotocky Military Acad., Brno, Czech.
SOURCE: Collection of Czechoslovak Chemical Communications (1969), 34(5), 1482-90

[redacted]

CODEN: CCCCAK; ISSN: 0010-0765
DOCUMENT TYPE: Journal
LANGUAGE: English

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AB . . . photosensitive coatings. They are useful in the manuf. of fuel cells, photocells, and energy storage mechanisms such as the solar **battery** and the heat pump. 17 references
IT 1518-16-7, 2,5-**Cyclohexadiene**-.DELTA.1,.alpha.:4,.alpha.'-dimalononitrile
(compds. semiconductive)
ACCESSION NUMBER: 1966:486572 CAPLUS
DOCUMENT NUMBER: 65:86572
ORIGINAL REFERENCE NO.: 65:16215e-h
TITLE: Organic semiconductors
AUTHOR(S): Datt, S. C.; Verma, J. K. D.; Nag, B. D.
CORPORATE SOURCE: Saha Inst. Nucl. Phys., Calcutta
SOURCE: Sci. Cult. (Calcutta) (1966), 32(2), 57-62
DOCUMENT TYPE: Journal
LANGUAGE: English

L2 ANSWER 19 OF 19 CAPLUS COPYRIGHT 2003 ACS
AB . . . temp. of 0.11 v. is measured. The cell delivers 60 .mu.amp. into a 2500 ohm load, acting as a primary **battery**. Without excess Lewis acids or bases in the 2 compartments, current can be drawn from the cell after charging with a conventional **battery** charger as is characteristic for a secondary **battery**
IT 2,5-**Cyclohexadiene**-.DELTA.1,.alpha.:4,.alpha.'-dimalononitrile, complex with triethylaminium ion (2:1)
Aminium compounds, triethyl, triethyl-complex with 2,5-**cyclohexadiene**-.DELTA.1,.alpha.:4,.alpha.'-dimalononitrile
Triethylamine, compd. with 2,5-**cyclohexadiene**-.DELTA.1,.alpha.:4,.alpha.'-dimalononitrile
(electrolytes for storage batteries and voltaic cells from)
ACCESSION NUMBER: 1964:7780 CAPLUS
DOCUMENT NUMBER: 60:7780
ORIGINAL REFERENCE NO.: 60:1338c-e
TITLE: Electrolytic (nonaqueous) cell
INVENTOR(S): Jr, William R. Wolfe
PATENT ASSIGNEE(S): E. I. du Pont de Nemours & Co.
SOURCE: 6 pp.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3110630		19631112	US	19600811